

AMENDMENTS TO THE CLAIMS

LISTING OF THE CLAIMS

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1. (Currently amended) A system for detecting arc faults in an electrical circuit, wherein the system comprises: a store of a plurality of temporal models gathered over time periods of electrical events associated with arc faults and of events not associated with arc faults; an interconnection for extracting from said circuit electrical signals associated with electrical events in said circuit; a processor for processing the signals into a form suitable for comparison with said models; and a comparator for comparing the processed signals with said models to determine whether the event giving rise to said signals is an arc fault or not.
 2. (Original) A system according to Claim 1, wherein said interconnection for extracting electrical signals includes a current sensor.
 3. (Original) A system according to Claim 1, wherein said interconnection for extracting electrical signals provides an indication of voltage.
 4. (Currently amended) A system according to Claim 1, including a circuit breaker, and wherein said system is arranged to open said circuit breaker when an arc fault is detected.
 5. (Original) A system according to Claim 1, wherein said temporal models are in the form of templates.
 6. (Original) A system according to Claim 1, wherein said temporal models are in the form of stochastic models.
 7. (Currently amended) A system for detecting arc faults in an electrical circuit, wherein said system includes an artificial neural net programmed to ~~recognise~~ recognize features of

different arcs so as to enable arcs caused by faults in said circuit to be distinguished from other arcs.

8. (Currently amended) A system for detecting arc faults in an electrical circuit, wherein said system comprises: a store of a plurality of temporal models gathered over time periods of electrical events associated with arc faults and of events not associated with arc faults; a current sensor for extracting from said circuit signals representative of current in said circuit; an output of voltage in said circuit; a processor for processing the current and voltage signals into a form suitable for comparison with said models; and a comparator for comparing the processed signals with said models to determine whether the event giving rise to said signals is an arc fault or not.

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9. (Currently amended) A system for detecting arc faults in an electrical circuit, said system comprising: a store of a plurality of temporal models gathered over time periods of electrical events associated with arc faults and of events not associated with arc faults; means for extracting from said circuit electrical signals associated with electrical events in said circuit; means for processing said signals into a form suitable for comparison with said models; and means for comparing the processed signals with said models to determine whether the event giving rise to said signals is an arc fault or not.

10. (Currently amended) A method of detecting an arc fault in a circuit comprising the steps of, extracting signals from said circuit; processing said signals into a form suitable for comparison; comparing the processed signals with a plurality of stored temporal models gathered over time periods representative of both arc faults and of events not associated with arc faults; and providing an output in accordance therewith.

11. (Original) A method according to Claim 10, wherein said temporal models are in the form of templates.

12. (Original) A method according to Claim 10, wherein said temporal models are in the form of stochastic models.

13. (Original) A method according to Claim 10, wherein the extracted signals are representative of current in said circuit.

14. (Original) A method according to Claim 10, wherein the extracted signals are representative of voltage in said circuit.

15. (Currently amended) A method according to Claim 10, including the step of supplying said output to a circuit breaker to open said circuit breaker when an arc fault is detected.

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16. (Original) A method of detecting an arc fault in a circuit comprising the steps of extracting signals from said circuit; processing signals into a form suitable for comparison; supplying the processed signals to an artificial neural net programmed to recognise recognize features of different arcs so as to enable arcs caused by faults in said circuit to be distinguished from other arcs; and providing an output in accordance therewith.

17. (Currently amended) A method according to Claim 16, including the step of supplying the output to a circuit breaker to open said circuit breaker when an arc fault is detected.

18. (Currently amended) A method of detecting an arc fault in a circuit comprising the steps of extracting current and voltage signals from said circuit; processing said signals into a form suitable for comparison; comparing the processed signals with a plurality of stored temporal models gathered over time periods representative of both arc faults and of events not associated with arc faults; and providing an output in accordance therewith to a circuit breaker in order to open said circuit breaker when an arc fault is detected.

19. (New) A system according to Claim 1, wherein the time periods comprise one or more half cycles or whole cycles.

20. (New) A system according to Claim 7, comprising:

an interconnection for extracting from said circuit electrical signals associated with electrical events in said circuit.

21. (New) A system according to Claim 20, wherein the interconnection provides an indication of at least one of current and voltage.
22. (New) A system according to Claim 8, wherein the time periods comprise one or more half cycles or whole cycles.
23. (New) A system according to Claim 9, wherein the time periods comprise one or more half cycles or whole cycles.
24. (New) A method according to Claim 10, comprising:
gathering the stored temporal models over one or more half cycles or whole cycles.